ATTACHMENT I
To Preliminary Amendment

Amended Claims

1. [amended] A lift-and-strike welding process comprising the first step of:

   a. cleaning a surface (5) of a component by applying a first voltage so as to strike an arc between a stud (4), which is to be connected to the surface (5), and the surface (5); and

   b. reversing the polarity of the first voltage wherein the stud (4) is welded to the surface (5) by means of at least one arc struck by means of a second voltage.

2. [amended] The process claimed in Claim 1 wherein:

   a. setting the first voltage higher than a subsequent second voltage of reverse polarity.

3. [amended] The process claimed in Claim 2 wherein:

   a. adjusting the first voltage to a positive polarity.

4. [amended] The process claimed in Claim 3 wherein:

   a. coating the stud (4) with a lubricant layer for a cold-forming machining operation prior to welding the stud (4) onto the surface (5).

5. [amended] The process claimed in Claim 4 wherein:

a. reducing the first voltage to a zero-current state;

b. using a pilot voltage of a different polarity at the start of the welding process; and

c. subsequently raising the voltage to a welding voltage thereafter.

6. [amended] The process claimed in Claim 5 wherein:

a. maintaining the zero voltage for a predetermined period of time, a second voltage is building up and applying the second welding voltage.

7. [amended] The process claimed in Claim 6 wherein:

a. an electric cleaning current flows between a surface (5) of the component and the stud (4) welded thereon with the stud (4) resting on the surface (5) lifting the stud (4) off the surface (5) up to an approximately constant distance for removing a coating from the surface (5) through ignition of an arc as a cleaning agent;

b. changing the polarity of the current wherein, afterwards, at least one welding current is produced; and

c. welding the stud (4) to the surface (5).

8. [amended] The process claimed in Claim 7 wherein:

a. using a cleaning current of between 15 amperes and 500 amperes; and

b. reducing the cleaning current after the cleaning operation.

9. [amended] The process claimed in Claim 8 wherein:

a. reversing the polarity of the current; and

b. applying a maximum welding current to weld the stud (4) to the surface (5).

10. [amended] The process claimed in Claim 9 wherein:

a. moving the stud (4) into contact with the surface (5) after disconnection of the welding current.

11. [amended] The process claimed in Claim 10 wherein:

a. applying the cleaning current as long as or longer than the pilot current, which is applied prior to applying the welding current.

12. [amended] The process claimed in Claim 11 wherein:

a. applying a welding current that is equal to or stronger than the cleaning current.

13. [amended] The process claimed in Claim 12 wherein:

a. raising the stud (4) to a predetermined distance (S) for cleaning which is at least two times greater than the distance (S) for welding that the stud (4) is raised above the surface (5).

14. [amended] The process claimed in Claim 13 wherein:

a. controlling the time period of the cleaning process by measuring the current at the surface (5).

15. [amended] A Lift-and-strike welding apparatus (1) having a guide (9) for a weld-on stud (4) and a control device (10) for the guide (9) and a programmed device (11) for controlling or regulating the electric current and the voltage used for welding, the lift-and-strike welding apparatus (1) comprising:

a. a polarity reversing means (12) for the voltage used for welding included in the programmed device (11) to provide a cleaning current which has a reverse polarity compared to the welding current that is produced prior to the welding operation.

16. [amended] The combination claimed in Claim 15 wherein:

a. the programmed device (11) has a focusing device to produce an arc which is to be struck.

17. [amended] The combination claimed in Claim 16 wherein:

a. the programmed device (11) has a polarity reversing means (12) to produce a shorted circuit for maintaining [a] the struck arc during a reversal of the polarity.

18. [amended] The combination claimed in Claim 17 wherein:

a. the welding apparatus (1) has an evaluation device that operates during the cleaning operation to inspect the quality of the cleaning.

19. [amended] The combination claimed in Claim 18 wherein:

a. the polarity reversing means (12) has a circuit element;

b. the circuit element produces an arc current maintains the struck arc during the reversal of a polarity of the arc voltage.

20. [amended] The combination claimed in Claim 19 wherein:

a. a first (13) power source formed in the polarity reversing means (12) wherein the first power source (13) to supply a cleaning current to the welding apparatus (1); and

b. a second power source (14) formed in the polarity reversing means (12) to supply a pilot current and a welding current to the welding apparatus (1).

21. [amended] The combination claimed in Claim 20 wherein:

a. a coil (15) is connected to the second power source (14) to maintain the struck arc during the reversal of the polarity.

22. [amended] The combination claimed in Claim 15 wherein:

a. the surface (5) is formed of aluminum;

b. the surface (5) has a lubricant coating (8) formed thereon during its manufacture.

23. [amended] The combination claimed in Claim 15 wherein:

a. the surface (5) is formed of steel sheet; and

b. the surface (5) has a lubricant coating formed thereon during its manufacture.